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## **CLAIMS**

What we claim is:

- 1. A canola protein isolate consisting predominantly of 2S canola protein having a protein content of at least about 90 wt% of (N x 6.25) on a dry weight basis (d.b.) and having an increased proportion of 2S canola protein and a decreased proportion of 7S canola protein when compared to canola protein isolates consisting predominantly of 2S canola protein and derived from aqueous supernatant from canola protein micelle formation and precipitation.
- 2. The canola protein isolate of claim 1 which is derived by heat treatment of said aqueous supernatant.
- 3. The canola protein isolate of claim 1 which is derived from a selective membrane procedure in which an aqueous canola protein solution derived from canola oil seed meal and containing 12S, 7S and 2S canola proteins is subjected to a first selective membrane technique which selectively retains 12S and 7S canola proteins in a retentate and permits 2S protein to pass through the membrane as a permeate, the permeate is subjected to a second selective membrane technique which selectively retains 2S canola protein and permits low molecular weight contaminants to pass through the membrane as a permeate, and the retentate from the second selective membrane technique is dried.
- 4. The canola protein isolate of claim 1 having a protein content of at least about 100 wt% (N x 6.25) d.b.
- 5. A canola protein isolate having a protein content of at least about 90 wt% (N x 6.25) on a dry weight basis (d.b.) and containing at least about 85 wt% of 2S canola protein and less than about 15 wt% of 7S canola protein of the canola proteins present in the isolate.
- 6. The canola protein isolate of claim 5 wherein the isolate contains at least about 90 wt% of 2S canola protein and less than about 10 wt% of 7S canola protein of the canola proteins present in the isolate.
- 7. The canola protein isolate of claim 5 having a protein content of at least about 100 wt% (N x 6.25) d.b.
- 8. A process for the preparation of a canola protein isolate having an increased proportion of 2S canola protein, which comprises:

- (a) providing an aqueous solution of 2S and 7S proteins consisting predominantly of 2S protein,
- (b) heat treating the aqueous solution to cause precipitation of 7S canola protein,
- (c) removing degraded 7S protein from the aqueous solution, and
- (d) recovering a canola protein isolate having a protein content of at least about 90 wt% (N x 6.25) d.b. and having an increased proportion of 2S canola protein.
- 9. The process of claim 8 wherein said heat treatment step is effected under temperature and time conditions sufficient to degrade at least about 50 wt% of the 7S canola protein present in said aqueous solution.
- 10. The process of claim 9 wherein said heat treatment step degrades the 7S canola protein by at least 75% of 7S canola protein present in said aqueous solution.
- 11. The process of claim 8 wherein said heat treatment step is effected by heating the aqueous solution for about 5 to about 15 minutes at a temperature of about 75° to about 95°C.
- 12. The process of claim 8 wherein said aqueous solution of 2S and 7S canola proteins is concentrated supernatant from canola protein micelle formation and precipitation.
- 13. The process of claim 12 wherein said canola protein micelle formation is effected by:
  - (a) extracting canola oil seed meal at a temperature of at least about 5°C to cause solubilization of protein in said canola oil seed meal and to form an aqueous protein solution,
  - (b) separating said aqueous protein solution from residual oil seed meal,
  - (c) increasing the concentration of said aqueous protein solution to at least about 200 g/L while maintaining the ionic strength substantially constant by a selective membrane technique to provide a concentrated protein solution,
  - (d) diluting said concentrated protein solution into chilled water having a temperature of below about 15°C to cause the formation of the protein micelles, and

- (e) separating supernatant from settled protein micellar mass.
- 14. The process of claim 13 wherein said supernatant is concentrated to a protein concentration of about 100 to about 400 g/L prior to said heat treatment.
- 15. The process of claim 14 wherein said supernatant is concentrated to a protein concentration of about 200 to about 300 g/L.
- 16. The process of claim 14 wherein said concentration step is effected by ultrafiltration using membrane having a molecular weight cut-off about 3,000 to about 100,000 daltons.
- 17. The process of claim 16 wherein the concentrated supernatant resulting from ultrafiltration is subjected to diafiltration prior to said heat treatment step.
- 18. The process of claim 17 wherein said diafiltration step is effected using from about 2 to about 20 volumes, preferably about 5 to about 10 volumes, of water using a membrane having a molecular weight cut-off of about 3,000 to about 100,000 daltons.
- 19. The process of claim 8 wherein said canola protein isolate has a protein content of at least about 100 wt% (N x 6.25) d.b.
- 20. A process for the preparation of canola protein isolate, which comprises:
  - (a) providing an aqueous canola protein solution derived from canola oil seed meal and containing 12S, 7S and 2S canola proteins,
  - (b) increasing the protein concentration of the aqueous solution using a selective membrane technique which is effective to retain 7S and 12S canola proteins in a retentate and to permit 2S protein to pass through the membrane as a permeate to provide a concentrated protein solution,
  - (c) drying the retentate from step (b) to provide a canola protein isolate consisting predominantly of 7S canola protein and having a protein content of at least about 90 wt% (N x 6.25) on a dry weight basis (d.b.),
  - (d) increasing the concentration of the permeate from step (a) using a selective membrane technique which is effective to retain 2S canola protein in a retentate and to permit low molecular weight contaminants to pass through the membrane in a permeate, and
  - (e) drying the retentate from step (d) to provide a canola protein isolate consisting predominantly of 2S protein and having a protein content of at least about 90 wt% (N x 6.25) d.b.

- 21. The process of claim 20 wherein said aqueous canola protein solution is provided by extracting canola oil seed meal at a temperature of at least about 5°C to cause solubilization of protein in said canola oil seed meal and to form an aqueous protein solution having a protein content of about 5 to about 40 g/L and a pH of about 5 to about 6.8 and separating the aqueous protein solution from the residual oil seed meal.
- 22. The process of claim 21 wherein step (b) is effected by concentrating the aqueous solution to a protein content of at least about 200 g/L while maintaining the ionic strength substantially constant having an ultrafiltration membrane having a molecular weight cut-off of about 30,000 to about 150,000 daltons, preferably about 50,000 to about 100,000 daltons, to provide the concentrated protein solution.
- 23. The process of claim 22 wherein the concentrated protein solution is subjected to a diafiltration step using about 2 to about 20, preferably about 5 to about 10, volumes of diafiltration solution.
- 24. The process of claim 23 wherein step (d) is effected by increasing the concentration of the permeate to a protein concentration of about 100 to about 400 g/L, preferably about 200 to about 300 g/L, using a membrane having a molecular weight cut-off of about 3,000 to about 30,000 daltons, preferably about 5,000 to about 10,000 daltons, to provide the retentate.
- 25. The process of claim 24 wherein the retentate is subjected to a diafiltration step using about 2 to about 20, preferably about 5 to about 10, volumes of diafiltration solution.
- 26. The process of claim 20 wherein at least one of the canola protein isolates produced in steps (c) and (e) has a protein content of at least about 100 wt%.
- 27. An aqueous solution of the canola protein isolate of claim 1.
- 28. The aqueous solution of claim 27 which is a canola protein isolate fortified soft-drink.
- 29. An aqueous solution of the canola protein isolate of claim 5.
- 30. The aqueous solution of claim 29 which is a canola protein isolate-fortified soft drink.